

**ABSTRACT**

A fluidic micro electro-mechanical system (MEMS) device is described. In one aspect, at least one at least partially covered fluidic channel is formed between a polymer layer and a polymer substrate as the polymer layer is deposited on the substrate. The partially covered fluidic channel is fabricated as a unitary polymer layer structure. In one implementation, a strong exposure process is applied to the polymer layer to create a deep cross-linked polymer region. A weak exposure process is applied to the polymer layer to create a shallow cross-linked polymer region.